

CLAIMS

What is claimed is:

- 5    1. A retainer clip comprising:  
      an elongated body wherein the elongated body comprises  
      a top surface and a bottom surface and a first end and a  
      second end;  
      a first retaining arm extending from the first end  
      generally downward from the bottom surface;  
10    10. generally downward from the bottom surface;  
      a second retaining arm extending from the second end  
      generally downward from the bottom surface;  
      a removal arm extending from either the first or  
      second end generally upward from the top surface; and  
15    15. a cam arm attached to the elongated body by a hinge  
      mechanism and extending outwardly from the top surface  
      wherein the cam arm may be rotated toward the removal arm  
      to lock a retained component to a retaining member.
- 20    2. The retainer clip of claim 1, wherein the elongated  
      body, first retaining arm, second retaining arm, and the  
      removal arm all comprise a single piece.

3. The retainer clip of claim 2, wherein the removal arm comprises a looped structure.

4. The retainer clip of claim 1, further comprising a first hook member located on the distal end of the first retaining arm and a second hook member located on the distal end of the second retaining arm.

5. The retainer clip of claim 1, further comprising a first cutout and a second cutout located on the first retaining arm and the second retaining arm respectively.

10 6. The retainer clip of claim 1, further comprising a lifting member on the distal portion of the cam arm wherein the lifting member is angled relative to the cam arm such that the lifting member is not parallel to the elongated body when the adjacent cam arm is parallel to the elongated body.

15 7. The retainer clip of claim 1, wherein the cam arm comprises a rotation stop configured to contact the top surface when the cam arm is generally perpendicular to the

elongated body such that the rotation stop prevents further rotation.

8. The retainer clip of claim 1, wherein the cam arm comprises two runner structures such that when the cam arm is generally parallel to the elongated body the runner structures extend past the bottom surface and when the cam arm is generally perpendicular to the elongated body the runner structures are substantially above the top surface.

9. The retainer clip of claim 8, wherein the runner structures each comprise an inward protrusion, configured to be in alignment, such that rotation of the cam arm from a locked position is impeded but not prevented.

10. A retainer clip comprising:

a main body;  
a connector member to engage the main body to a retaining member;  
a rotatable arm wherein the arm may be rotated between a locked position and an unlocked position such that the locked position causes a securing force to be applied to a

retained component disposed between the main body and the retaining member; and

a disengaging member disposed such that a pinching force may be applied to the disengaging member and to the 5 rotatable arm in the unlocked position such that the connector member disengages the main body from the retaining member.

11. The retainer clip of claim 10, wherein the retained 10 component comprises a heatsink and the retaining member comprises a heatsink retainer.

12. The retainer clip of claim 11 wherein the heatsink, the heatsink retainer and the retainer clip spatially 15 define a heatsink envelope such that the retainer clip does not substantially increase the size of the heatsink envelope.

13. A method of removing a retainer clip comprising:  
20 raising a rotatable cam arm from a first position relative to a retainer clip body to a second position; squeezing the cam arm and a removal arm together so that the retainer clip body is temporarily deformed such

that a first latching portion and a second latching portion of the retainer clip are separated; and lifting the retainer clip from a retaining member.

5 14. The method of claim 13, further comprising disengaging the first latching portion from a first engagement structure and the second latching portion from a second engagement structure wherein the first and second engagement structures are disposed upon the retaining member.

10 15. A method of installing a retainer clip comprising: squeezing a removal arm located on one end of a retainer clip body and a rotatable cam arm located generally in the center of the retainer clip body, wherein 15 the cam arm is rotated to a position generally parallel to the removal arm, such that the squeezing temporarily deforms the retainer clip body such that a first latching portion and a second latching portion of the retainer clip are separated;

20 lowering the retainer clip onto a retaining member such that the first latching portion and the second

latching portion advance beyond respective first and second latching structures located on the retaining member; and releasing the removal arm and the cam arm such that the retainer clip body is no longer deformed and the first and second latching portions engage with their respective 5 first and second engagement structures.

16. The method of claim 15, further comprising the act of rotating the cam arm to a position generally parallel to 10 the retainer clip body.

17. The method of claim 16, further comprising the act of disposing a retained component between the retainer clip body and the retaining member.

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18. The method of claim 17, wherein the act of rotating presses the retained component against the retaining member due to the action of two or more cam arm side structures which extend beneath the retainer clip body when the cam 20 arm is generally parallel to the retainer clip body.

19. A heatsink retaining clip designed to secure a heatsink to a heatsink retainer comprising:

a body portion;  
a first retaining arm coupled to the body portion;  
a second retaining arm coupled to the body portion;  
a disengagement arm coupled to the body portion; and  
a cam arm coupled to the body portion, wherein the cam  
5 arm is partially rotatable from a locked position to an  
unlocked position.

20. The heatsink retaining clip of claim 19, wherein the  
body portion, first retaining arm, second retaining arm,  
10 and disengagement arm comprise a single piece.

21. The heatsink retaining clip of claim 19, wherein the  
first retaining arm and the second retaining arm each  
15 further comprise a first hooked member and a second hooked  
member respectively such that the respective hooked members  
face each other.

22. The heatsink retaining clip of claim 19, wherein the  
first retaining arm and the second retaining arm each  
20 further comprise a first windowed cutout and a second  
windowed cutout.

23. The heatsink retaining clip of claim 19, further comprising an angled member located on the distal portion of the cam arm such that the angled member is angled away from the body portion when the cam arm is in the locked position.

24. The heatsink retaining clip of claim 19, further comprising two or more cam arm side extensions such that when the cam arm is in the locked position, the side extensions extend downward past a lower surface of the body portion and when the cam arm is unlocked the side extension are substantially above an upper surface of the body portion.

15 25. The heatsink retaining clip of claim 19, further comprising a rotation stop disposed along the cam arm such that the rotation stop impedes the rotation of the cam arm when the rotation stop comes into contact with an upper surface of the body portion.